4.—Notes on

A COLLECTION OF BEES FROM WESTERN AUSTRALIA.

With 2 Plates, Nos. V. and VI.

By Tarlton Rayment.

(*Read, 8th April,* 1930, *Published 24th July,* 1930).

Mr. Tom Greaves, the honorary secretary of the Victorian Entomological Club, has submitted to me a number of specimens which he collected in Western Australia. The interesting character of the new bees is sufficient justification for the publication of the descriptions. The balance of the material will form the basis of another paper.

Division **COLLETIFORMES.**

Family PROSOPIDIDAE.

Euprosopis elegans (Smith).

These beautiful black red and yellow bees were first described from Adelaide by Fred Smith, (1) as *Prosopis elegans*. Doctor Perkins, (2) erected the genus *Euprosopis*, which includes four forms, *E. elegans* (Smith), *E. elegans huseloides* Ckll., *E. husela* Ckll. and *E. nodosicornis* Ckll.

Professor Cockerill, (3) described the male of *Prosopis sydneyana*, and in June (4) he published the specific description of another male, *Prosopis rollei*. Three months later, he again referred to these elegant bees, and evidently felt some misgivings, for he said :—" *P. rollei* is readily separable from *elegans* in the male, but it may be that females at present ascribed to *elegans* belong in part to *rollei*."

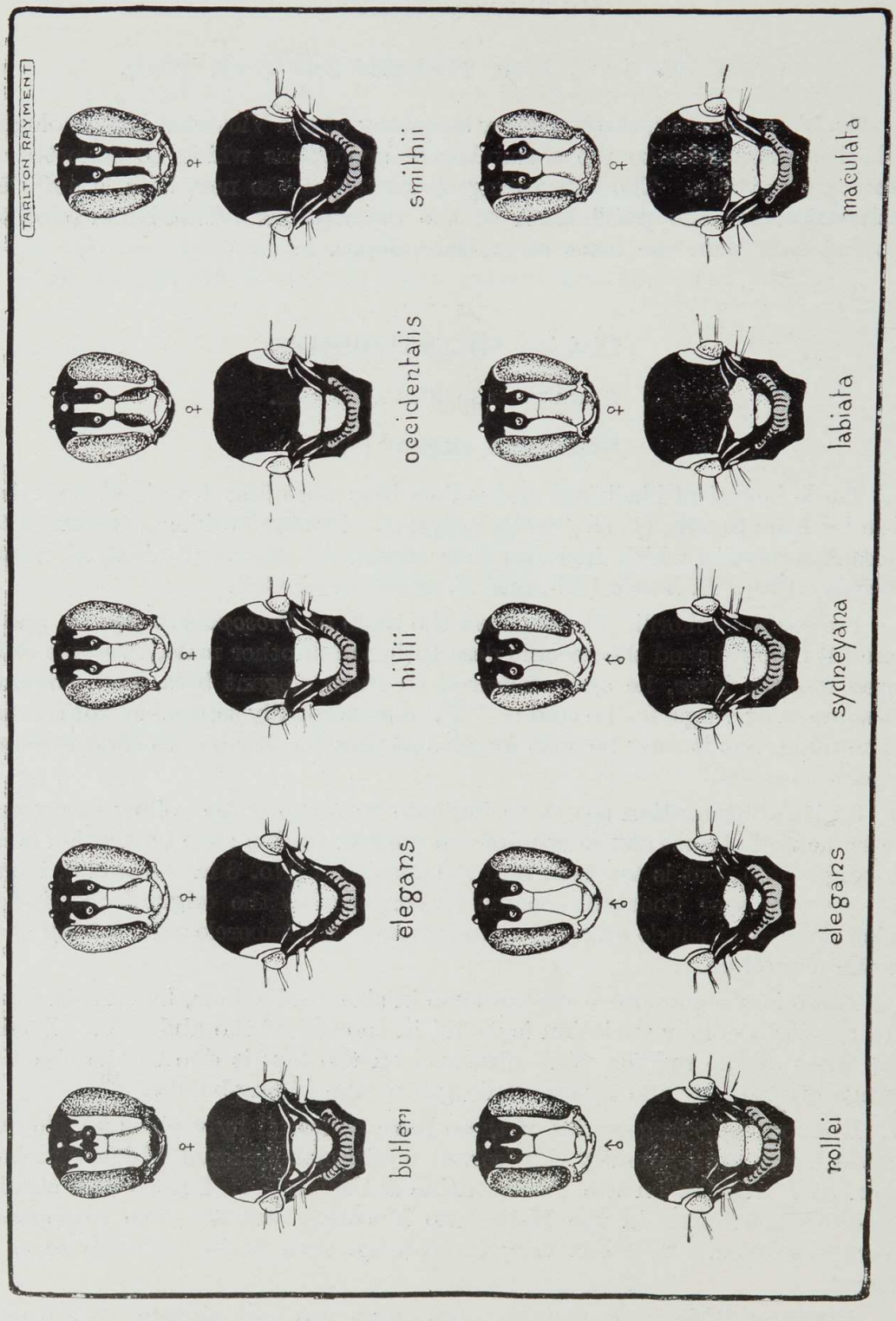
Smith's description seems to indicate that the three yellow face-marks are truncated almost at the level of the median ocellus ; the truncation is not a straight line, but is toothed, and the specimen (No. 6 in the table), identified by Professor Cockerill, seems to conform to the original description, which does not include any yellow marks near the tubercles, nor lateral spots on the scutellum.

There is a departure from the type in size, and colour, but not in sculpture ; a slight colour variation is found in the red of the abdomen. I think that most of the reddish tint observed on the legs is due to the chemical change effected by the hydrocyanic gas of the killing-bottles.

I have now a large series of these bees, collected by various people over a wide range and, recently, I received additional material which had been taken at Bungulla, on the Transcontinental Railway. I have also studied numerous specimens in the Melbourne Museum, and am able to separate several varieties. It seems very improbable that Smith had the sexes of *elegans*.

Ararat and Macedon, though miles apart, are both situated in the main mountain range of Victoria, enjoying much the same class of climate, and it is more than probable that variety *butleri* will prove to be the true female of *E. rollei*. The table will assist students to separate them.

PLATE V.


TARLTON RAYMENT
buhleri
elegans
hillii
occidentalis
smithii
rollei
elegans
sydneyana
labiata
maculata

1. *Female* 10 *mm.*

Light yellow mandibles and labrum ; large lateral spots on scutellum ; no yellow crescent near tubercules : an exceedingly fine line of reddish-amber separating the face-marks from the clypeus ; antennae bright orange throughout ; abdomen black, a few obscure red patches, hind margins of segments amber. Pterostigma almost colourless.

Horse-shoe Bend, Finke River, Central Australia (G. Hill.)

New variety *hillii.*

2. *Female* 8 *mm.*

All yellow face-marks reach to level of median ocellus, laterals terminate with a point, the median one is truncated ; reddish-amber mandibles and labrum ; small lateral marks on scutellum ; a long wide yellow epaulet ; no yellow crescent near tubercles ; a wide line of blackish amber separating face-marks from the clypeus ; scapes yellow, flagellum reddish-amber beneath, blackish above ; abdominal segments, one red, with large median black patch, two red, with a narrow black patch apically, three black, with red patch laterally, four, five and six black. Pterostigma dark amber.

Sandringham, Port Phillip, Victoria. (Rayment, February, 1929).

New variety *maculata.*

3. *Female* 11 *mm.*

Two yellow face-marks almost to level of median ocellus ; Supraclypeal mark small, bidentate at apex, a small cuneiform mark above ; a fine line of amber separating the face-marks ; labrum blackish-red, mandibles reddish-amber ; scapes reddish-amber ; flagellum reddish beneath, blackish above ; a short sub-triangular epaulet ; large lateral spots on scutellum ; sub-triangular marks near tubercles similar in size and shape to epaulet ; abdominal segments, one and two red, hind margins narrowly darker, three red, black basally. Legs reddish-amber. Pterostigma blackish-brown.

Mount Macedon, Victoria. (Butler, 27th November, 1927).

New variety *butleri.*

4. *Female* 10 *mm.*

Three yellow face-marks truncated at level of median ocellus ; a long hastate black mark separating face-marks from clypeus ; labrum yellow ; mandibles reddish-amber ; scapes yellow ; flagellum reddish-amber beneath, blackish above ; no small lateral spots on scutellum ; a long wide epaulet ; no yellow mark behind tubercles. Abdominal segments, one, two and three with obscure red laterally, three, four, five and six black.

Bungulla, Western Australia (Tom Greaves, October, 1929).

Hampton, Victoria (S. Chidgey, 7th December, 1929).

New variety *occidentalis.*

5. *Female* 10 *mm.*

Similar to 2, but has a yellow labrum, and all the face-marks are truncate at apex.

Mt. Yule, Healesville, Victoria. (R. Kelly, 26th February, 1914).

New variety *labiata.*

6. *Female* 7·5 *mm.*

Similar in colour and structure to 2, but has yellow labrum and mandibles, and no yellow spots, laterally, on scutellum ; apex of face-marks bidentate. Pterostigma lighter, with narrow dark margin.

Fern Tree Gully, Victoria (F. Spry, no date).

Bungulla, Western Australia. (Tom Greaves, October, 1929).

Identified by Professor Cockerell as *E. elegans* (Smith.)

7. *Male* 6 *mm.*

Three face-marks terminating with sharp points at level of median ocellus ; labrum yellow, mandibles yellow ; scapes dilated, yellow, flagellum yellow beneath, reddish-amber above ; no lateral marks on scutellum ; long narrow epaulet ; no yellow mark near tubercles. Abdominal segments, one red, with median black patch, two red, three black, with large lateral red patches, the others black. Pterostigma pale amber, dark narrow margins. Probably true male of *E. elegans.*

Broadmeadows, Victoria. (F. Spry, 31st January, 1920).

Bungulla, Western Australia. (Tom Greaves, October, 1929).

8. *Male :*

Similar to 6, but with postscutellum black. Abdominal segments one and two red, with a median black line, the others blackish. Adelaide, South Australia (type locality).

Described by Smith as *Prosopis elegans.*

It is better to regard this as variety *smithii.*

9. *Male* 6·2 *mm.*

Three pointed yellow face-marks reaching almost to level of median ocellus ; mandibles and labrum yellow ; antennae bright ferruginous ; tubercles, tegulae, scutellum, and a spot on the postscutellum, all ferruginous (probably reddened with cyanide). Legs bright ferruginous suffused with yellow. Pterostigma pale.

Ararat, Victoria. (Rolle).

Described by Professor Cockerell as *Prosopis rollei.*

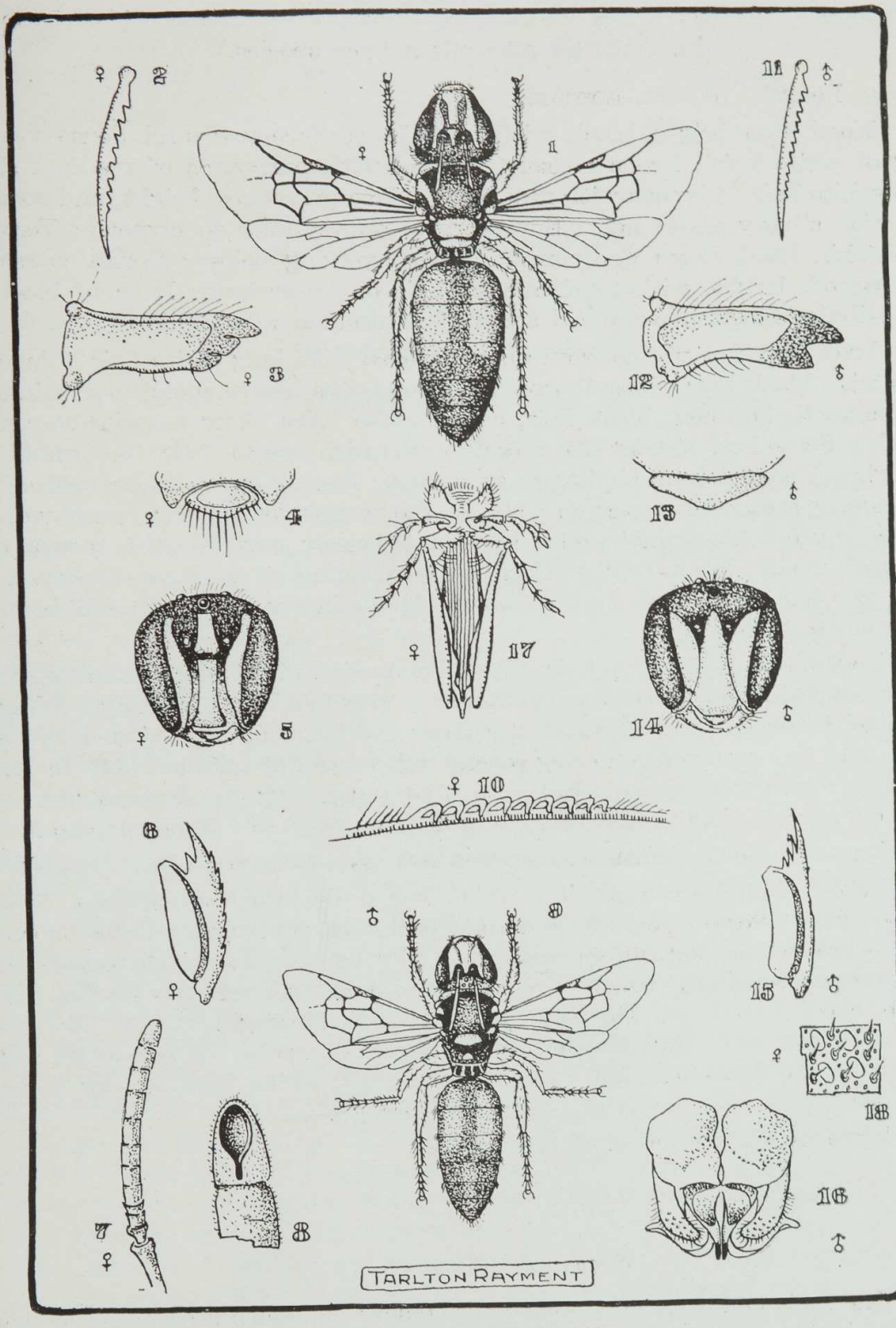
10. *Male* 6 *mm.*

Three yellow face-marks reaching to level of median ocellus, the median one gradually narrowing, the lateral ones truncated ; scape yellow, swollen, flagellum light ferruginous beneath, darker above ; labrum and mandibles bright chrome-yellow ; cheeks entirely black (all others with reddish patch on genae) ; scutellum and postscutellum yellow.

Sydney, New South Wales (W. W. Froggatt, 1891).

Described by Professor Cockerell as variety *sydneyana.*

PLATE VI.



EXPLANATION OF PLATE.

1. Adult female of Euprosopis elegans (Smith). 2. Hind calcar of female. 3. Mandible of female. 4. Labrum of female. 5. Front of head-capsule of female. 6. Strigil of female. 7. Antenna of female. 8. Small smooth cavity in apical joint of flagellum. 9. Adult male Euprosopis elegans. 10. Hamuli of female. 11. Calcar of male. 12. Mandible of male. 13. Labrum of male. 14. Front of head capsule of male. 15. Strigil of male. 16. Genitalia. 17. Glossa and palpi of female. 18. Pore and peg organs of antenna of female.

Family **COLLETIDAE.**

Paracollettes albo-pilosa (new species.)

Male—Length, 10 mm. approx.

Head wide, bright, black, with white hairs ; face-marks nil, dense covering of white hair ; Frons densely covered with punctures of medium size dull-white hair ; Clypeus with numerous coarse punctures, bright, and covered with silvery white hair ; Supraclypeal area similar to clypeus ; Vertex with thin black hair ; Compound Eyes converging below ; Genae coarsely punctured, bright, with much silvery hair on lower half ; Labrum black ; Mandibulae black, obscure red apically ; Antennae submoniliform, black.

Prothorax not visible from above, pleura with long white hair ; Tubercles with black hair ; Mesothorax with numerous coarse punctures, shining and smooth between, black hair, a few white hairs along anterior margin, black ; Scutellum similar to mesothorax, with white hair on posterior margin ; Postscutellum similar to scutellum ; Metathorax with a small subtriangular area with transverse striae, the remainder having dense vermicular rugae ; Abdominal dorsal segments densely covered with punctures of medium size, black, bright ; thin bands of white hair on bases of segments one, two and three, anal fimbria black ; Abdominal ventral segments black, with some white hair.

Legs black, with white hair ; Tarsi black with white hair ; Claws black ; Hind calcariae finely serrated, blackish ; Tegulae black, shining ; Wings hyaline, iridescent, anterior 6 mm. ; Nervures blackish, basal just short of nervulus, first recurrent entering second cubital cell at middle ; Cells second small cubital contracted at apex into a pentagonal figure ; Pterostigma extremely narrow, black ; Hamuli nine in number, of moderate development.

Locality, Perth, W.A. (Tom Greaves), 14th October, 1929.

Allies : *P. punctatus* Smith, which has dull-white hair on face, dirty white hair on vertex, testaceous antennae, distant punctures on mesothorax with ochreous hair, legs rufo-piceous with fulvous hair, nervures testaceous. *P. incanescens* Ckll, which has shallow punctures on mesothorax, and some chestnut-red on the legs, nervures fusco-ferruginous. *P. cinereus* Smith, which has wings clouded at apex, and fringe of white hair on segments of the abdomen. *P. argentifrons* Smith, which has anterior tibiae and tarsi, and fifth tarsus of other legs, ferruginous.

Type in the collection of the author.

Paracolletes plumosella Ckll.

One male conforms very well to Professor Cockerell's description of this species in the length, 7½ mm., and the colour, metallic green on head and thorax, with a dark purple abdomen, but the long dull white hair on the frons is mixed with dusky, and the legs are darker, the red being most obscure.

Professor Cockerell thought that *plumosella* might prove to be the male of *plumosa* SMITH, but I have close to my home a sandy bank housing a large colony of this species, and have caught numbers of both sexes at the burrows. The male of *plumosa* is larger than *plumosella*, and the richer purple of the abdomen is much more highly polished.

Only the male of *plumosella* has been described, and this is rather surprising, as the female must be brightly coloured, and it is not a small species. I shall shortly review the collection of the West Australian Agricultural Department, and fully expect to identify the female *plumosella*.

Perth, West Australia, October, 1929. (Tom Greaves).

Division **ANDRENIFORMES.**

Family ANDRENIDAE.

Subfamily HALICTINAE.

Halictus (Chloralictus) occidentalis (new species).

Female—Length, 5·5 mm. approx.

Head wide, very minutely striate, a brilliant coppery iridescence, a few short white hairs ; Face-marks confined to two small smooth blackish patches at bases of anterior orbital margins ; Frons minutely striate ; Clypeus convex, with coarse scattered punctures, purplish black, iridescent, the posterior edge of reddish-coppery iridescence ; Supraclypeal area with coarse punctures, iridescent copper ; Vertex with black ocelli on a slight prominence ; Compound Eyes converging above and below, blackish-claret ; Genae with numerous appressed short white hairs ; Labrum reddish-amber ; Mandibulae cream-coloured, black basally, reddish apically ; Antennae submoniliform, clear ferruginous beneath, slightly darker above.

Prothorax not visible from above ; Tubercles butter-yellow, with a black spot, and fringed with short white hair ; Mesothorax with numerous fine punctures, cancellate, a few short white hairs, a brilliant metallic olive green—not so coppery as head ; Scutellum polished, scattered coarse and fine punctures, more coppery than mesothorax ; Postscutellum with punctures closer together, darker, duller, a few white hairs ; Metathorax with a wide lunate area, but no rim, a fine scale-like sculpture, superimposed basally are a few coarse anastomosing rugae which run out medianly and laterally as transverse striae ; Abdominal dorsal segments clear chestnut-red, shining, a few white hairs laterally ; Abdominal ventral segments darker, with a scopa of curled white hair, laterally blackish spots.

Legs clear ferruginous, knees creamy-yellow, whitish hair; Tarsi slightly darker ; Claws paler ; Hind Calcariae pale, with two long strong teeth ; Tegulae translucent, shining, very pale amber, with a dark spot, axillae pale ; Wings hyaline, very iridescent, anterior 4 mm. ; Nervures basally are palest amber, apically a darker amber, second recurrent and third intercubitus extremely faint ; Cells : radial rather large, the second and third cubitals greatly contracted at apex ; Pterostigma dark amber with a narrow dark margin ; Hamuli seven, of weak development.

Locality : Perth, W.A. (Tom Greaves). Date, 19th October, 1929.

Allies : *H. tarltoni* Ckll, which has a blackish head and tubercles ; *H. raymenti* Ckll, which has a black patch on basal segment of abdomen ; *H. doweri* Raym, which has anastomosing rugae over entire area of metathorax, and one long tooth on the hind calcar. This may be near to *H. vitripennis*, Smith, but that author's description is altogether too meagre.

Type in the collection of the author.

Paratype in the W.A. Museum.

Halictus brazieri—Cockerell.

Two females, quite typical, were received, but owing to several bees having been sent in one capsule, I may not have the localities correctly. They came either from Perth or Denmark, I think the latter. October, 1929. (Tom Greaves).

Previously recorded from Kalamunda.

Specimens sent to W.A. Museum, Perth.

Halictus chapmani—Cockerell.

Eight females, typical in form and colour, but the transverse ridges on the anterior portion of the mesothorax of the type are inconspicuous on these specimens.

Denmark, W.A., October 26th, 1929. (Tom Greaves).

Previously recorded from "Western Australia."

Specimen sent to the Museum, Perth, and also to the Agricultural Department, Perth.

I obtained a few Acarid mites from the thoraces of these bees and, later on, will publish a paper on the incidence of the Acarids in diseases of the honey-bee.

Halictus (Chloralictus) formosus (new species.)

Female—Length, 6 mm. approx.

Head wide, a beautiful iridescent emerald-green with coppery sheen ; Face-marks two small smooth blackish marks at bases of orbital margins ; Frons large, longitudinally striate, with scattered punctures along the grooves ; Clypeus convex, smooth, anterior half brilliant blackish-purple, coarse punctures, anterior edge depressed ; Supraclypeal area iridescent green, no striae, a few punctures ; Vertex has transverse striae, and a few pale hairs ; Compound Eyes blackish-brown, converging at base and apex ; Genae closely striate, with a few light hairs ; Labrum black ; Mandibulae black, obscurely red apically ; Antennae black, the scapes being very long.

Prothorax not visible from above, mesopleura finely rugose, with long pale hair ; Tubercles black, with a fringe of drab hair ; Mesothorax with a delicate tesselate sculpture, numerous punctures of medium size, a brilliant iridescent green, with a narrow purple margin laterally ; Scutellum similar to mesothorax in colour and sculpture ; Postscutellum darker iridescent green, with anastomosing rugae ; Metathorax large, a wide lunate area with coarse anastomosing rugae, brilliant iridescent green, a fringe of golden hair ; Abdomen with dorsal segments a polished blackish bronze, hind margins broadly depressed, a few pale hairs at the apex ; Abdominal ventral segments granular, with a few white hairs.

Legs slender, black, with obscure red tints, pale hair ; Tarsi amber, hair yellowish ; Claws reddish ; Hind Calcariae with three long strong rounded teeth, amber ; Tegulae amber, black basally and anteriorly ; Wings subhyaline, iridescent, anterior 4·8 ; Nervures brown, the third intercubitus and second recurrent slightly weaker ; Cells normal for the genus ; Pterostigma dark brown ; Hamuli seven in number, weakly developed.

Locality, Albany, W.A. (T. Greaves). 23rd October, 1929.

Allies : *H. callaspis* Ckll. which has bluish tints on the mesothorax and, reddish tints on the abdomen, and is not so robust.

H. formosus has a superficial resemblance to *H. demissus* Ckll, which is duller, and has a black metathorax with radiating rugae.

Type in the collection of the author.

Halictus (Chloralictus) greavessi, new species.

Female—Length, 4·5 mm. approx.

Head slightly wider than thorax, longitudinally striate, a brilliant coppery green, a few white hairs ; Face-marks nil ; Frons with a number of punctures between the striae ; Clypeus with a median depression, a few coarse punctures, blackish purple, extremely iridescent ; Supraclypeal area convex, metallic purple ; Vertex with wine-red ocelli in a low curve ; Compound Eyes slightly converging above, dark claret colour ; Genae iridescent green, with numerous white hairs ; Labrum amber ; Mandibulae amber, with dark tips ; Antennae with long black scapes, flagellum fulvous beneath, blackish above.

Prothorax not visible from above ; Tubercles dark iridescent green, fringed with short white hair ; Mesothorax evenly punctured, a minute shagreen sculpture, a dull iridescent coppery-green ; Scutellum brilliant bluish green ; Post scutellum rough, blackish iridescent green ; Metathorax with numerous coarse rugae, partly radiating, inside a lunate band of fine striae, the whole area of a brilliant iridescent green ; Abdomen : dorsal segments dull chestnut-red, hind margins broadly lighter, one a brilliant, metallic bronze, with broad red margin, a few short white hairs ; abdominal ventral segments reddish, with white hair.

Legs chestnut-red, with scanty white hair, coxae, trochanters and femora basally dark ; Tarsi paler, with yellowish hair ; Claws pale amber ; Hind Calcariae with one long rounded tooth, and a low wide wave-like one beyond ; Tegulae and axillae pale amber ; Wings iridescent, slightly iridescent anterior 2·6 mm. ; Nervures pale amber, first recurrent entering apical fourth of second cubital cell, second recurrent and third intercubitus slightly weakened ; Cells : second cubital contracted at apex ; Pterostigma very pale amber ; Hamuli of weak development, six in number.

Locality : Bungulla, West Australia, October 1st, 1929.

Allies : *H. raymenti* Ckll, which has a black patch on the abdomen, and is larger, and *H. erythrurus* Ckll, which has a striate sculpture on the metathorax ; neither of these is so iridescent.

I have dedicated the species to the collector, Mr. Tom Greaves, a fellow member of the Entomological Club.

Type in the collection of the author.

Halictus erythrurus maiusculus, new sub-species.

The Perth specimens are certainly larger than *H. erythrurus* Ckll., from Victoria and Queensland, but with the exception of stature, it is difficult to separate them. These western bees measure 5–6 mm. in length, whereas the eastern species measure 4 mm. approx. The flagellum beneath is somewhat paler, and the metathorax is more bronze, but the striate sculpture is similar. The anastomosing rugae of the blackish metathorax present no differences. The abdomen is of a like reddish-brown, the basal segment has a similar black patch, and the hind margins of the segments have the minute fringe of pale hair. The hind calcar has the one strong tooth and wave-like edge of *erythrurus*. The dark legs have similar long white hair. The neur-

ation of the wings and the pterostigma are darker ; the second and third intercubitus, and the second recurrent nervures, though weak, are much stronger than those of *H. erythrurus*, those portions being almost obsolete in the species.

Locality, Perth, West Australia. October 19th, 1929. (Tom Greaves).

Type in the collection of the author.

Paratype in the W.A. Museum.

Division **MEGACHILIFORMES**

Family MEGACHILIDAE.

Megachile macularis, Dal. Tor.

A female was collected by Mr. T. Greaves, at Bungulla, October 1st, 1929, and this eastern species is now added to the fauna of the western State. The specimen is slightly longer than the Victorian and Queensland species, and there is less hair about the clypeus. My northern specimens were taken on *Daviesia ulicina*, and, under the microscope, I was unable to distinguish any difference in the pollen-grains carried by the two bees ; of course, there are plenty of *Daviesia* species in Western Australia, but I was pleased to prove the bee faithful to its food-plant.

Megachile heriadiformis, Smith.

One female conforms to Smith's description in size, namely, 5 lines, and also in sculpture, but differs slightly from the geno-type—described from Adelaide—in the colouring of the hair in the sixth abdominal segment, which Smith says, is "golden yellow." The specimen before me has only a few golden hairs, scattered among white ones. On the fourth, fifth and sixth segments there are, laterally, a few coarse black hairs. The abdominal scopa is loaded with pale-yellow pollen-granules, but the pilosity appears to be white. The hair of the abdominal dorsal segments is sufficient fo form narrow bands, instead of the "short fascia" laterally, of the type. However, the structure is similar, even to the two minute tubercles on the anterior margin of the clypeus.

Bungulla, West Australia, October, 1929. (Tom Greaves).

Previously recorded from Yallingup, West Australia.

Megachile trichomarginata, new species.

Female : Length, 14 mm. approx.

Head large, longer than wide, densely punctured, black, bright ; Face-marks, nil ; a tuft of silvery white hair at sides of face ; Frons densely and coarsely punctured, with coarse black hair ; Clypeus transverse, anterior edge concave and crenulate, polished, anteriorly a few coarse punctures ; Supraclypeal area polished, numerous punctures of irregular size ; Vertex densely punctured, roundly developed ; Compound Eyes with anterior margins parallel, claret brown ; Genae excessively and coarsely punctured, shining, a few long white hairs ; Labrum concave, a few large punctures, highly polished, black ; Mandibulae strong, broad, ruggedly sculptured, black, shining, a long fringe of golden-red hair on the posterior and cutting edge ; Antennae submoniliform, black.

Prothorax not visible from above ; Tubercles with a tuft of long white hair, black ; Mesothorax densely and coarsely punctured, shining, black, a few short white hairs ; Scutellum similar to mesothorax ; Postscutellum

similar to mesothorax, but with more hair ; Metathorax rugose basally, a fine scale-like sculpture beyond ; Abdominal dorsal segments ; densely punctured, one and two constricted, white hair-band on one, two with lateral patches, six with a ferruginous spot ; Abdominal ventral segments similar in colour and sculpture, a scopa of whitish hair.

Legs black, shining, densely punctured, with white hair ; Tarsi black, except the ferruginous fifth tarsus, yellowish hair ; Claws ferruginous ; Hind Calcariae finely serrated, black ; Tegulae with a concentric striate sculpture, densely punctured, bright, black ; Wings dusky, iridescent, anterior 9 mm. ; Nervures blackish brown, basal meeting nervulus, both recurrents entering second cubital at ends ; Cells : costal edge of radial broad and dark, second cubital contracted at apex ; Pterostigma narrow, blackish ; Hamuli eleven in number, well developed.

Perth, West Australia. October 19th, 1929. (Tom Greaves).

Allies : *M. trichognatha* Ckll., which is smaller, 10 mm., with a snout-like median apical elevation on clypeus, flagellum ferruginous beneath, dark fuscous or ferruginous nervures, dull area of metathorax, abdominal segments two to four constricted basally.

M. fulvomarginata Ckll., which has fewer punctures on cheeks, calcariae pale yellowish, a median process on clypeus.

I obtained a few Acarid mites from the hairs of the metathorax.

Type in the collection of the author.

Co-types in the collection of the Agricultural Department, Perth.

Division **XYLOCOPIFORMES.**

Family CERATINIDAE.

Exoneura punctata, new species.

Female : Length, 7 mm. approx.

Head wider than thorax, black, shining, a delicate sculpture, and scattered punctures ; Face-marks confined to a subobsolete reddish-amber T, a thin rod on some, or a spot ; Frons widely excavated at bases of antennae ; Clypeus prominent, with large coarse punctures, and the T mark described ; Supraclypeal area rising to a carina half way to median ocellus ; Vertex adapted to the mesothorax, a few coarse black hairs ; Compound Eyes with anterior margins parallel, as in *E. hamulata* ; Genae large, black, shining, scattered coarse punctures ; Labrum suboval, reddish-amber ; Mandibulae black with reddish tips ; Antennae submoniliform, black, with an obscure reddish line on scapes, segments of flagellum wider than long.

Prothorax not visible from above, scattered pale hair on mesopleura ; Tubercles black, with a fringe of dull white hair ; Mesothorax black, shining, a delicate sculpture, and scattered large punctures along anterior ; Scutellum similar to mesothorax in sculpture and colour ; Postscutellum similar to mesothorax but duller ; Metathorax black, bright, the scale-like sculpture well defined ; Abdomen with dorsal segments dark rich red, four and five with scattered coarse black hair, the apex with golden hair, one and two with a small median black mark, this is very variable ; Abdomen with ventral segments rich red, few pale hairs.

Legs dark rich red, coxae black, hair on tibiae golden, darker anteriorly Tarsi rich reddish-amber ; Claws rich red ; Hind Calcariae amber, with ex;

ceedingly fine serrations ; Tegulae black, with wide amber margin, shining ; Wings dull amber colour, anterior 5·5 mm ; Nervures dark brown ; Cells normal for the genus ; Pterostigma large, dark brown ; Hamuli eight in number, weakly developed.

Locality, Albany, W.A. (Tom Greaves). 23rd October, 1929.

Allies : *E. baculifera* Ckll, which is smaller, and has black hair on hind tibiae ; *E. hamulata* Ckll, which has a large hooked T cream-colour ; *E. simillima* which is smaller, and has yellow tubercules ; *E. bicolor* Smith, which has a creamy inverted ⊥ on the clypeus.

Type in the collection of the author.

Paratypes in the Perth Museum.

Exoneura angophorae occidentalis Ckll.

A large series of females, collected at Kalamunda, showed great variation in size ; the majority agreeing with Prof. Cockerell's description 6½–7 mm. The smallest measured only 5 mm., and since each abdominal segment of this bee showed a broad bi-undulate dusky band (confined to the second segment in the sub-species) it might be regarded as variety A. The basal segment of the variety has the black mark of the sub-species ; the hind border of the black being obtusely bilobed. The tegulae of the variety has a pale margin—reddish in the sub-species. The black scapes have an obscure reddish line on the front, though Prof. Cockerell gives " yellowish red " as an alternative. Two mm. is a considerable difference in size, but that is not unusual among bees, for during development they are often affected by changes in the temperature of their surroundings, and the quality of their food. These bees are all reed-dwellers, and, therefore, are subjected to greater variations in temperature than, say, the *Paracolletes* in her chamber five or six feet deep in the earth. The bees of this genus are very fond of the plants *Callistemon* and *Bursaria*.

Kalamunda, Western Australia, November 2nd, 1929. (Tom Greaves).

Previously recorded from Yallingup, W.A.

Specimens sent to W.A. Museum and the Agricultural Department at Perth.

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1. Fred. Smith, 1885, Catalogue of the Hymenoptera in the British Museum.
2. R. C. L. Perkins, 1912, Annals and Magazine of Natural History.
3. Prof. T. D. A. Cockerell, 1905, Annals and Magazine of Natural History.
4. Prof. T. D. A. Cockerell, 1910, Journal New York Entomological Society.

Note.—The Divisions are those of T. D. A. Cockerell, and W. W. Robbins. (University of Colorado Studies Vol. VII., No. 3, p. 179, 1910.)

The description of the neuration of the wings is based on the arbitrary method of Messrs. Rohwer and Gahan. (" Horismology of the Hymenopterous wing." Proc. Ent. Soc. Washington xviii., pp. 20–76, 1916.)

It will be noticed that I have systematised the specific descriptions, and this form will be used for all future work.